

# Miscellaneous Notes

## 1. URINE OF BATS AS A MEANS OF OFFENCE

Leptospirosis is an infection transmitted from animal to animal and from animal to man by the urine of the infected animal, so any observations on habits of urination are likely to be of value in the study of the disease. Surveys of mammals have shown that infection with leptospire is widespread, particularly among ground dwelling mammals, but have shown its occurrence also in such unexpected animals as bats.<sup>1</sup> The following observation is therefore of interest.

On entering a limestone cave in Malaya which was inhabited by horseshoe bats, I found at one point, where my body blocked the entrance to part of the cave, that the disturbed bats would fly up and flutter in front of me, a foot or so away, as if using their sound-ranging mechanism to seek a way past. Repeatedly, however, I saw the bat hovering in front of me give out a squirt of urine before retiring to the back of the cave. These squirts were well directed, and I received many on my face, hands, and the front of my shirt. Evidently the bats were using their urine as a means of offence.

I should be most interested to know of any other observations on the urination of bats, particularly any indication of their using urine on other animals, and particularly on other bats.

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November 5, 1958.

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### REFERENCE

- Alston, J. M. & Broom, J. C. (1958): Animal Leptospirosis in Malaya. (1) Leptospirosis in man and animals, E. & S. Livingstone Ltd., Edinburgh & London. Methods, Zoogeographical background and broad analysis of results.  
Smith, C. E. G., Turner, L. H., Harrison, J. L., & Broom, J. C. (in press): Emanuel, M. L. (In manuscript): Animal leptospirosis in North Queensland.

## 2. THE FLYING FOX OF ADDU ATOLL, MALDIVE ISLANDS—A CORRECTION

Owing to a series of unfortunate circumstances, the fruit-bats of Addu Atoll were incorrectly identified by me on my first arrival in Gan. My note on pages 334 to 337 of Volume 55 (No. 2), published in August 1958, was written under a regrettable misapprehension.

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<sup>1</sup> Genera in which clear evidence of leptospirosis has been obtained are *Cynopterus* in Indonesia, *Eonscteris* and *Myotis* in Malaya, *Pteropus* in Queensland (Alston and Broom, Smith *et al.*, Emanuel)

Subsequent collecting has shown that all the common fruit-bats, previously believed to be *Pteropus hypomelanus maris*, were in fact a race of *Pteropus giganteus*, having unusual and peculiar habits and generally living solitary lives amongst the breadfruit trees and coconut palms of the villages.

Now that more careful observation and collecting has been possible and all the larger islands in the Atoll have been visited, the very unexpected fact has emerged that *Pteropus hypomelanus maris* appears to have ceased to exist in Addu Atoll and to have been replaced by the larger *Pt. giganteus*. The smaller species *Pt. hypomelanus* is not only unknown to the local Maldivians but a careful search has failed to reveal a single specimen. There is, however, the remote possibility that a colony still exists on one of the uninhabited islets, and that the Maldivians quite understandably confuse the smaller species with the juvenile individuals of *Pt. giganteus* which are frequently to be seen flying around, feeding on fruits, or resting in the heads of palm trees quite on their own.

It is curious that the habits of the common *Pt. giganteus*, as resident in Addu Atoll, should differ so greatly from the normal habits of *Pt. giganteus ariel*, as resident in North Malé Atoll. The description of the habits, as given under the name *Pt. hypomelanus maris* in my note, now under correction, should of course be read as applying to the resident *Pt. giganteus* of Addu Atoll. It is also curious that the profile of the Addu Atoll bats should appear to be so different from that of typical *giganteus*. Yet an examination of the skull shows that actually there are no essential differences between them.

It is very much regretted that my note should have been published before the identity of the species was confirmed by more adequate collecting and the critical examination and measurement of specimens in the hand.

Apologies are now tendered for any confusion that the premature publication of my first note may have caused.

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December 26, 1958.

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